

## DIVISION 2 — EARTHWORK

### Section 02950: Planting

#### **SECTION 02950: PLANTING**

##### **PART 1 – GENERAL**

###### 1.01 DESCRIPTION

Provide planted trees, shrubs and ground covers as shown and specified. The work includes:

- A. Plants and planting
- B. Specified planting soils
- C. Mulch and fertilizer
- D. Staking
- E. Maintenance

###### 1.02 RELATED SECTIONS

- A. Section 02300 Earthwork
- B. Section 02811 Landscape Irrigation

###### 1.03 QUALITY ASSURANCE

- A. Comply with sizing and grading standards of the 2000 edition of “American Standard for Nursery Stock.”
- B. Nomenclature shall conform with Hortus Third compiled by the L. H. Bailey Arboretum, Cornell University, 1976.
- C. All plants shall be nursery grown or collected materials that has been held in a nursery for at least one year. Nursery climatic conditions must be similar to those in the locality of the Project. All plants shall be weed free at the time of planting.
- D. Stock furnished shall be at least the minimum size indicated. Larger stock is acceptable at no additional cost, and providing that the larger plants will not be cut back to size indicated. Provide plants

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indicated by two measurements so that only a maximum of 25 percent are of the minimum size indicated and 75 percent are of the maximum size indicated.

#### 1.04 SUBMITTALS

- A. Submit the following material sample per Section 01340:
  - 1. Mulch submittal including the source of supply and provide a two-pound sample for approval before installation
- B. Submit the following product data per Section 01340:
  - 1. Planting fertilizer
  - 2. Mulch
  - 3. Plant material sources: Within 15 days of award of Contract, submit documentation that plant materials have been ordered, nursery names, and representative color photographs of each plant species. Plant materials shall not be shipped until approved by the Engineer.

#### 1.05 DELIVERY, STORAGE AND HANDLING

- A. Deliver fertilizer materials in original, unopened, and undamaged containers showing weight, analysis, and name of manufacturer. Store in a manner to prevent wetting and deterioration.
- B. Dig, pack, transport, and handle plants with care to ensure protection against injury. Inspection certificates required by law shall accompany each shipment invoice or order to stock. On arrival, the certificate shall be filed with the Owner. Protect all plants from desiccation. Wiltproof or another antidesiccant shall be applied only with approval of the Engineer. If plants cannot be planted immediately upon delivery, properly protect them with soil, wet peat moss, or in a manner acceptable to the Engineer.

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Water heeled-in plantings daily. No plant shall be bound with rope or wire in a manner that could damage or break the branches.

- C. Cover plants transported on open vehicles with a protective covering to prevent wind-burn.
- D. Provide dry, loose soils for planting. Frozen or muddy soil is not acceptable.
- E. Stock shall be handled by root ball only, not the trunks, stems, or tops.

#### 1.06 PROJECT CONDITIONS

- A. Work notification: Notify Engineer at least seven working days prior to installation of plant material.
- B. Protect existing utilities, paving, and other facilities from damage caused by planting operations.
- C. Do not install plant material when ambient temperatures may drop below 35°F or above 80°F.
- D. Do not install plants when wind velocity exceeds 30 MPH.
- E. Confine work to designated areas. Do not disturb existing vegetation outside Project limits and protect all trees, shrubs, and ground covers within Project limits not designated to be removed. Do not permit vehicular traffic or materials storage under or around new or existing trees.
- F. Install planting material when tide levels are below the elevation of the working surface.

#### 1.07 SEQUENCING AND SCHEDULING

Install plants during the period from October 1 through April 1, except willow live stakes. Willow live stakes shall be installed between November 1 through March 1.

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#### 1.08 WARRANTY

- A. Warrant plant material to remain alive and be in healthy, vigorous condition for a period of one year after Physical Completion. Inspection of plants will be made by the Engineer at the completion of planting.
- B. Within this warranty period, Contractor shall replace, in accordance with the Drawings and Specifications, all plants that are dead or, as determined by the Engineer, are in an unhealthy or unsightly condition, and have lost their natural shape due to dead branches, or other causes due to the Contractor's negligence. The cost of such replacement(s) is at the Contractor's expense. Warrant all replacement plants for one year after installation, unless otherwise specified.
- C. Warranty shall not include damage or loss of trees, plants, or ground covers caused by fires, floods, freezing rains, lightning storms, or winds over 75 MPH, winter kill caused by extreme cold and severe winter conditions not typical of planting area, acts of vandalism, or negligence on the part of the Owner.
- D. Remove and immediately replace all plants, as determined by the Engineer, to be unsatisfactory during the initial planting installation.
- E. This warranty also applies to existing trees, shrubs and ground covers that are to be removed and heeled-in for later replanting on-site.

## PART 2 – PRODUCTS

#### 2.01 PLANT MATERIALS

Plants: Provide plants typical of their species or variety, with normal, densely developed branches and vigorous, fibrous root systems. Provide only sound, healthy, vigorous plants free from weeds, defects, disfiguring knots, sunscald

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injuries, and abrasions of the bark, plant diseases, insect eggs, borers, and all forms of infestation. All plants shall have a fully developed form without voids, open spaces, broken branches, flush cuts or stubs.

- A. Dig balled and burlapped plants with firm, natural balls of earth of sufficient diameter and depth to encompass the fibrous and absorbing root system necessary for full recovery of the plant. Provide ball sizes complying with the latest edition of the "American Standard for Nursery Stock." Cracked or mushroomed balls are not acceptable.
- B. Bare-root plants: Dug with adequate fibrous roots, covered with a uniformly thick coating of mud by being puddled immediately after they are dug, or packed in moist straw, sawdust, or peat moss.
- C. Container-grown stock: Grown in a container for sufficient length of time for the root system to have developed to hold its soil together, firm and whole.
  - 1. No plants shall be loose in the container.
  - 2. Container stock shall not be pot bound.
- D. No pruning wounds shall be present with a diameter of more than one inch and such wounds must show vigorous callous on all edges. Trees shall not be pruned within six months prior to delivery.
- E. Willow Live Stakes: Live stakes shall be live wood two to five years old with smooth bark that is not deeply furrowed. Make clean cuts and trim branches of stakes as closely as possible. Stakes with split ends, or peeled bark, are unacceptable. The stakes shall be consistently cut so that the top end is square, and the bottom end (planted end) is angled. Live stakes shall be a minimum of 2 feet and a maximum of 3 feet

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#### 2.02 FERTILIZER

Fertilizers shall be “Bio Paks 16-6-8 plus minors and biostimulants” available from Reforestation Technologies International (RTI), 1-800-788-4769, or approved equal.

#### 2.03 BARK MULCH

- A. Bark mulch shall be ground fir or hemlock bark, free from weed seeds, sawdust, splinters, or other debris. Bark mulch shall not contain resin, tannin, wood fiber, or other compounds detrimental to plant life.
- B. Ground bark shall meet the following gradation requirements:

<u>Sieve Sizes</u>	<u>Percent Passing</u>
1/4 inch	95% to 100%
No. 8	80% to 100%
No. 35	0% to 80%

#### 2.04 GOOSE EXCLOSURE MATERIALS

- A. Rebar Stakes: Bars per Section 03200-2.01.
- B. Polypropylene Rope: one quarter inch diameter, polypropylene rope. Color: yellow, red, or blue.
- C. Reflective Mylar Tape: “Flash Scare Tape, one inch wide × 500 feet rolls.

## PART 3 –EXECUTION

#### 3.01 INSPECTION

- A. Finish grading shall be inspected and approved by the Engineer prior to planting.
- B. The irrigation system shall be inspected and approved by the Engineer prior to planting.

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- C. Plant material shall be inspected and approved by the Engineer at the nursery or site prior to installation. Remove unsatisfactory material from the site immediately.

#### 3.02 PREPARATION

Contractor shall locate plants by staking with stakes and flags as indicated on the Drawings or as approved in the field. If obstructions are encountered that are not shown on the Drawings, do not proceed until Engineer has selected alternate plant locations.

#### 3.03 INSTALLATION

- A. Cleanly cut an "X" in coir erosion control fabric in approved locations for individual plants.
- B. Excavate circular plant pits with scarified vertical sides, except for plants specifically indicated to be planted in beds. Provide planting pits at least twice the diameter of the root system or container. Depth of pit shall accommodate the entire root system. Scarify the bottom and sides of the pit to a depth of four inches.
- C. Place specified planting soil for use around the balls and roots of the plants.
- D. Prior to completing backfilling of rootball of trees and shrubs, place Bio Paks on sides evenly around rootball, 1-inch minimum and 4-inch maximum below the finish grade and approximately two inches from root tips. Place quantities of Bio Paks based on plant size per manufacturer's instructions. Do not install BioPaks in Saltmarsh areas (below elevation 10 feet MLLW datum).
- E. Set plant material in the planting pit to proper grade and alignment. Set plants upright, plumb, and faced to give the best appearance or relationship to each other or adjacent structure. Set crown of plant material at the finish grade. No filling will be permitted around trunks or stems or above grafts on grafted trees.

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Backfill the pit with specified soil. Do not use frozen or muddy mixtures for backfilling. Form a ring of soil around the edge of each planting pit to retain water.

- F. After balled and burlapped plants are set, water in soil mixture around bases of balls and fill all voids.
  - 1. Remove all burlap, or plastic wrapping materials, twine, and wires, and wire baskets from root balls.
  - 2. If burlap has been chemically treated (green color), remove from the planting pit.
- G. Space ground cover plants using triangular spacing in accordance with indicated dimensions. Adjust spacing as necessary to evenly fill planting bed with indicated quantity of plants. Plant to within 18 inches of the trunks of trees and shrubs within planting bed and to within 12 inches of edge of bed.
- H. Spread and arrange roots of bare-rooted plants in their natural position. Work in specified planting soil. Do not mat roots together. Cut all broken and frayed roots before backfilling with remaining specified planting soil.
- I. Willow Live Stakes:
  - 1. Preparation of Cuttings: All cuttings shall be soaked in water immediately after cutting and for a minimum of five days prior to delivery to the site. Cuttings shall be planted the same day that they are delivered to the site. Cuttings shall be kept continually soaked in water on-site until immediately before planting.
  - 2. Installation of Live Stakes: Use an iron stake or bar of similar diameter to the live stakes to create a pilot hole of sufficient depth. Plant stakes with angled bottom end in the ground and at least two to five emerging buds exposed at the top



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end. Install stakes with a rubber mallet and protect stakes from damage such as splitting, bark peeling, and bud breakage during installation. Install each stake with 80 percent (4/5) buried and 20 percent (1/5) exposed. Ensure good contact with soil by tamping or backfilling. Install stakes perpendicular to the slope as shown on Drawings.

#### J. Mulching:

1. Mulch tree and shrub planting pits and shrub beds with required mulching material two inches deep immediately after planting. Thoroughly water mulched areas. After watering, rake mulch to provide a uniform finished surface.
2. Mulch ground cover beds with one to one and one-half inches deep immediately after planting.

#### K. Staking: Stake all deciduous and coniferous trees immediately after planting.

#### L. Pruning: Prune all trees only to remove broken or damaged branches, or for aesthetic purposes as directed by the Engineer. Branches will be pruned at the branch collar. Neither stubs nor flush cuts will be acceptable.

### 3.04 MAINTENANCE

- A. Maintain planting for a period of at least 60 days after completion of planting operations or until all plants are sufficiently recovered from transplanting and in a healthy growing condition acceptable to the Engineer.
- B. Maintenance shall include cultivating, weeding, watering, and pruning (only as directed), as necessary to maintain plants in a healthy and vigorous condition.

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1. Re-set settled plants to proper grade and position. Restore planting saucer and adjacent material and remove dead material.
2. Straighten, repair and adjust guy wires and stakes as required.
3. Correct defective work as soon as possible after deficiencies become apparent and weather and season permit.
4. Water trees, plants, and ground cover beds within the first 24 hours of initial planting, and until final acceptance.

#### 3.05 PHYSICAL COMPLETION

- A. Inspection to determine physical completion of planted areas will be made by the Engineer, upon Contractor's request. Provide notification at least 10 working days before requested inspection date.

Planted areas will be excepted provided all requirements, including the maintenance period have been complied with and plant materials are alive and in a healthy, vigorous condition.

- B. Upon physical completion, the Owner will assume plant maintenance.

#### 3.06 CLEANING

Perform cleaning during installation of the work and upon completion of the work. Remove from site all excess materials, soil, debris, and equipment. Repair damage resulting from planting operations.

**END OF SECTION 02950**